STATUS EPILEPTICUS IN ADULTS – FULL CLINICAL GUIDELINE

Reference No: CG-NEURO/2016/001

Patient Information needed to treat
Weight and age
Concurrent anti-convulsant therapy and disease states
Cause if known
Secure IV access in largest vein available

Acute Causes
Electrolyte or metabolic disturbances
CNS infection

Chronic Causes
Pre-existing epilepsy
Poor compliance with anti convulsants
Chronic alcohol abuse

Correct Reversible causes
Check blood glucose – give 125mls IV Glucose 20% if hypoglycaemic
Give Pabrinex (Vits B+C) if possible alcohol withdrawal

Immediate measures Early Status
Lorazepam 4mg IV bolus over 2 mins or more rapidly if required in status (Half the dose if elderly/frail)
OR Diazepam 5-10mg IV (Diazemuls formulation) at a rate of 2mg/min (if IV Lorazepam not available)
OR Rectal Diazepam 10-20mg if IV route not available
OR Buccal Midazolam 10mg stat (unlicensed use)
(Midazolam solution for inj. may be given by buccal route (unlicensed indication)

Seizures continuing ↓

Repeat IV benzodiazepines at same doses as above after 10mins
OR repeat rectal dose at same dose as above if IV access still not available
OR repeat buccal midazolam at same dose once after 10 mins if necessary

Seizures continuing ↓

Within 20-30minutes – Established Status
IV Phenytoin 20mg/kg based on IBW
(15mg/kg if already on phenytoin possibly subtherapeutic level ?poor compliance)
Maximum dose is 2gm at a rate of no greater than 50mg/min through a large vein using 0.22 micron in line filter.
Monitor BP/pulse and ECG (whenever possible; see detailed dosing and monitoring on page 2)
IBW in kg males = actual height in cm – 100cm IBW in kg females = actual height in cm – 105cm
NB For patients on Ward 3, Kings Lodge at London Road Community Hospital, if seizures do not terminate after 15 mins call a 999 ambulance to transfer patient to Emergency Department

Consider need for maintenance treatment IV Phenytoin 100mg 8hrly starting 12hrs post load

Consider another 5-10mg/kg IV Phenytoin administered as above

Seizures continuing

Greater than 30 mins Refractory status NOT FOR ICU escalation – CALL NEUROLOGIST
2nd line alternative (Unlicensed indication)
Sodium Valproate infusion 1000mg given at rate up to 6mg/kg/min.
3rd Line alternative (Unlicensed indication)
Levetiracetam infusion 1000mg stat over 15 mins

Greater than 30 mins Refractory Status FOR ICU escalation - CALL ANAESTHETIST
Arrange rapid sequence intubation
Subsequent agents used will require protected airway and possible ventilation
Midazolam, Propofol, Thiopental, Phenobarbital
as per RDH ICU/Anaesthetics guidelines

Dosing, Administration and Monitoring

IV Lorazepam 1st line in status – duration of effect is 12-24 hrs
Dose: 0.1mg/kg – maximum of 4mg given IV at rate of 2mg/min (Suitable for most adults over 40kg)
Elderly pts – half the dose initially and if seizures not stopped after 3 mins give other half of dose
Adverse effects: may cause respiratory depression and rarely respiratory or cardiac arrest.
Advise ventilatory support readily available
Lorazepam inj. is stored in fridge and to be diluted 1:1 with NaCl 0.9% or WFI before administration into a large vein

IV Diazepam can be used if IV Lorazepam is unavailable.
Dose:10mg given at a rate of 2-5 mins and same dose repeated after 10 mins if necessary.
It carries high risk of thrombophlebitis reduced by used Diazemuls (emulsion formulation).

Rectal Diazepam solution can be used if IV route unavailable
Dose: 500mcg/kg. Elderly: 250mcg/kg

Buccal Midazolam – unlicensed use
Dose: 500mcg/kg (Maximum 10mg) Repeated once after 10 mins

IV Phenytoin
Dose: 20mg/kg
Dose < 1gm can be put in 100mls NaCl 0.9%
Dose > 1gm can be put in 250mls NaCl 0.9%
Maximum concentration is 10mg/ml
Loading dose made as an urgent IV in Pharmacy or at bedside (refer to urgent IV monograph)
Phenytoin should only be added to NaCl 0.9% and never to Glucose 5% as precipitation occurs.
Always supply a 0.22 micron filter line with initial dose and this filter can be used for up to 96 hours.

ALWAYS monitor blood pressure and heart rate every 15 minutes during administration and for 1 hour after. Observe for signs of respiratory depression and toxicity.
WHEREVER POSSIBLE monitor heart rhythm using a cardiac monitor (consider a manual defibrillator if no monitored beds are immediately available. The absence of a cardiac monitor should NOT delay phenytoin loading dose in status epilepticus).

Adverse effects: Administration can cause arrhythmias, hypotension, CNS depression. If occurs, stop infusion until recovered, then restart at a slower rate.
In patients aged > 60 years, haemodynamically unstable pts or with CV disease, use slower rate from the outset if possible e.g. 20mg/minute
IV Phenytoin is irritant so watch for thrombophlebitis at injection site. If extravasation occurs, refer to local treatment policies
Phenytoin should never be given IM in the treatment of status as absorption is slow and erratic and may cause pain, necrosis and abscess

Normal range is 10-20mg/L
Turnaround time for routine result of level is 24 hours / urgent request 1 hour
Brain concentrations of phenytoin are nearly maximal at the end of the IV infusion, so it takes 20-25 minutes to work when typical loading dose is given to an adult

Maintenance dose (if indicated) : 1st dose to be given 12 hrs after loading dose.
IV dose is 5mg/kg/day in 3 divided doses. Usual maintenance dose is 100mg IV three times a day to avoid excessive swings in peaks and troughs for 7 days then convert to once daily.
Maintenance IV phenytoin should not be prepared as an urgent IV but as per standard pharmacy aseptic SOP
Once daily treatment can be IV or oral. 300mg phenytoin caps = 270mg syrup
Please note phenytoin is not recommended 1st line for maintenance treatment

IV Sodium Valproate

Dose: 1000mg at a rate of 6mg/kg/min
Administer dose in 100mls NaCl 0.9%
Contraindications: Not to be used in pts with hepatic disease or dysfunction, pancreatitis or porphyria
Adverse effects: Local injection site reaction, pain and inflammation and dizziness

IV Levetiracetam

Dose: 1000mg given as a stat dose over 15 mins
Administer dose in 100mls NaCl 0.9%
Adverse effects: nasopharyngitis, somnolence, headache, hyponatraemia, drug reaction with eosinophilia and systemic symptoms (DRESS)

PARALDEHYDE

Rarely used in adults, but may occasionally be asked for it if venous access is unavailable and benzodiazepines are C/I or patient has not responded to them..

Rectal route is preferred option.

30ml premixed paraldehyde and olive oil enema is available. Dose can be repeated PR after one hour if seizures persist. Kept in dispensary.

Paraldehyde should NOT be given IV as it causes thrombophlebitis, pulmonary oedema and pulmonary haemorrhages Should NOT usually be given IM for treatment of seizures.

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Documentation Controls

Development of Guideline:	Clinical Pharmacists Group
Consultation with:	Dr A.Gregoriou, Dr S.Singhal and Dr M. O'Donoghue
Approved By:	Specialist Medicine Business Unit - March 2016
Approved By:	Medical Division - March 2016 CGG - 23/03/16
Version 1.1.0, update to include King's Lodge, LRCH, Approved By:	Integrated Care Division - 17/1/17
Version 1.2.0, update to Phenytoin monitoring	Approved by SH, 19/12/17, Med Div approval 18/1/18
Review Date:	March 2019
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